



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,732	11/17/2003	Arup Acharya	YOR920030449US1	4665

7590 05/09/2007
Rafael A. Perez-Pineiro
Intellectual Property Law Dept.
IBM Corporation
P.O. Box 218
Yorktown Heights, NY 10598

EXAMINER

MEW, KEVIN D

ART UNIT	PAPER NUMBER
----------	--------------

2616

MAIL DATE	DELIVERY MODE
-----------	---------------

05/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/714,732

Applicant(s)

ACHARYA ET AL.

Examiner

Kevin Mew

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/17/2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Drawings

1. The drawings are objected to because Fig. 1 lacks description in each of the labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because the title of the invention should be removed from the abstract page. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 6-7, 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Dyke et al. (US Publication 2004/0153497 A1).

Regarding claim 1, Van Dyke discloses a method for handling Session Initiation Protocol ("SIP") messages for voice over Internet Packet call control, comprising:

receiving a stream of SIP messages (receiving a stream of SIP INVITE messages with different service types, paragraphs 0021-0025);

classifying the messages based on at least two message types (classifying SIP INVITE messages based the message service type, paragraphs 0021-0023);

placing said messages in separate queues associated to the message types (placing said SIP messages in separate application processors AP associated with the message service type, paragraph 0025); and

allocating SIP call control server processing resources to each queue (allocating SIP service to each application processor AP) according to a pre-defined policy (according to the service type included in the SIP INVITE message, paragraph 0025).

Regarding claim 2, Van Dyke discloses the method of claim 1, wherein the step of classifying the messages comprises classifying the messages as a REGISTER, INVITE (SIP INVITE message, paragraphs 0021-0025), or RE-INVITE message.

Regarding claim 6, Van Dyke discloses a signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for handling Session Initiation Protocol ("SIP") messages for voice over Internet Packet call control, said method comprising:

- receiving a stream of SIP messages (receiving a stream of SIP INVITE messages with different service types, paragraphs 0021-0025);

- classifying the messages based on at least two message types (classifying SIP INVITE messages based the message service type, paragraphs 0021-0023);

- placing said messages in separate queues associated to the message types (placing said SIP messages in separate application processors AP associated with the message service type, paragraph 0025); and

- allocating SIP call control server processing resources to each queue (allocating SIP service to each application processor AP) according to a pre-defined policy (according to the service type included in the SIP INVITE message, paragraph 0025).

Regarding claim 7, Van Dyke discloses the medium of claim 6, wherein the step of classifying the messages comprises classifying the messages as a REGISTER (SIP INVITE message, paragraphs 0021-0025), INVITE, or RE-INVITE message.

Regarding claim 11, Van Dyke discloses a system (Fig. 2) for handling Session Initiation Protocol ("SIP") messages for voice over Internet Packet call control (paragraph 0016), comprising:

- a classifier (SIP dispatcher 22, Fig. 2) for receiving a stream of SIP messages (receiving a stream of SIP INVITE messages with different service types, paragraphs 0021-0025) and classifying the messages based on at least two message types (classifying SIP INVITE messages based the message service type, paragraphs 0021-0023);

- a plurality of queues associated to the message types (a plurality of application processors associated to the message service types, paragraph 0025);

- a SIP control server (SIP dispatcher 22, Fig. 2) for directing calls corresponding to the messages (dispatching corresponding to the service types of the SIP INVITE messages) and waiting to be served in the queues (waiting to be served in the application processors APs, paragraph 0025); and

- a scheduler (SIP dispatcher 22, Fig. 2) for allocating SIP call control server processing resources to each queue according to a pre-defined policy (for allocating application processing resources to each application processor according to the service type defined in the SIP INVITE message, paragraph 0025).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Dyke et al. in view of Horvath et al. (US Publication 2005/0102421 A1).

Regarding claim 3, Van Dyke discloses all the aspects of claim 2 above, except fails to explicitly show the method of claim 2, wherein the step of classifying the messages comprises classifying a message as an emergency call message by reading the destination address of a SIP INVITE message.

However, Horvath discloses in a VoIP network using the session initiation protocol SIP, an emergency call is recognized by reading the dialed destination address (paragraphs 0002, 0037).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the call distribution system and method of Van Dyke with the teaching of Horvath in recognizing an emergency call by reading the dialed destination address in a VoIP network using SIP such that the method of handling SIP messages in Van Dyke will also comprise the step of classifying the messages comprises classifying a message as an emergency call message by reading the destination address of a SIP INVITE message.

The motivation to do so is to allow an emergency call station to be contacted.

Regarding claim 8, Van Dyke discloses all the aspects of claim 7 above, except fails to explicitly show the medium of claim 7, wherein the step of classifying the messages comprises classifying a message as an emergency call message by reading the destination address of a SIP INVITE message.

However, Horvath discloses in a VoIP network using the session initiation protocol SIP, an emergency call is recognized by reading the dialed destination address (paragraphs 0002, 0037).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the call distribution system and method of Van Dyke with the teaching of Horvath in recognizing an emergency call by reading the dialed destination address in a VoIP network using SIP such that the method of handling SIP messages in Van Dyke will also comprise the step of classifying the messages comprises classifying a message as an emergency call message by reading the destination address of a SIP INVITE message.

The motivation to do so is to allow an emergency call station to be contacted.

5. Claims 4-5, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Dyke et al. in view of D'Souza et al. (US Publication 2004/0236966 A1).

In claim 4, Van Dyke discloses all the aspects of claim 1 above, except fails to explicitly show the method of claim 1, wherein the step of allocating resources comprises allocating varying degrees of server processing resources to individual queues of SIP messages by using a token-bucket rate control for processing individual queues; said rate of token generation for each queue being dictated by an importance attached to the message type.

However, D'Souza discloses a system and method of mitigating denial of service attacks using SIP (paragraphs 0041, 0042, abstract) by dequeuing packets from a plurality of queues at different rates according to the level of trust associated to the source address of the incoming packets such that the higher the trust in the addresses the higher the rate at which the packets are dequeued from the given queue (paragraphs 0017, 0018).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the SIP resource allocation method of Van Dyke with the teaching of D'Souza in dequeuing packets from a plurality of queues at different rates according to the level of trust associated to the source address of the incoming packets such that the resource allocation method of Van Dyke will comprise allocating varying degrees of server processing resources to individual queues of SIP messages by using a token-bucket rate control for processing individual queues; said rate of token generation for each queue being dictated by an importance attached to the message type.

The motivation to do so is to mitigate the effects of a packet flooding denial-of service attack and the effects of data search resource exhaustion.

In claim 5, Van Dyke discloses all the aspects of claim 1 above, except fails to explicitly show the method of claim 1, wherein the step of allocating resources comprises controlling a rate at which messages from individual users are processed by a call control server, thereby preventing denial-of-service attacks on the call control server by individual servers in a packet-based VoIP infrastructure.

However, D'Souza discloses a system and method of mitigating denial of service attacks using SIP (paragraphs 0041, 0042, abstract) by dequeuing packets from a plurality of queues at different rates according to the level of trust associated to the source address of the incoming packets such that the higher the trust in the addresses the higher the rate at which the packets are dequeued from the given queue (paragraphs 0017, 0018).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the SIP resource allocation method of Van Dyke with the teaching of D'Souza in dequeuing packets from a plurality of queues at different rates according to the level of trust associated to the source address of the incoming packets such that the resource allocation method of Van Dyke will comprise controlling a rate at which messages from individual users are processed by a call control server, thereby preventing denial-of-service attacks on the call control server by individual servers in a packet-based VoIP infrastructure.

The motivation to do so is to mitigate the effects of a packet flooding denial-of service attack and the effects of data search resource exhaustion.

In claim 9, Van Dyke discloses all the aspects of claim 6 above, except fails to explicitly show the medium of claim 6, wherein the step of allocating resources comprises allocating varying degrees of server processing resources to individual queues of SIP messages by using a token-bucket rate control for processing individual queues; said rate of token generation for each queue being dictated by an importance attached to the message type.

However, D'Souza discloses a system and method of mitigating denial of service attacks using SIP (paragraphs 0041, 0042, abstract) by dequeuing packets from a plurality of queues at

different rates according to the level of trust associated to the source address of the incoming packets such that the higher the trust in the addresses the higher the rate at which the packets are dequeued from the given queue (paragraphs 0017, 0018).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the SIP resource allocation method of Van Dyke with the teaching of D'Souza in dequeuing packets from a plurality of queues at different rates according to the level of trust associated to the source address of the incoming packets such that the resource allocation method of Van Dyke will comprise allocating varying degrees of server processing resources to individual queues of SIP messages by using a token-bucket rate control for processing individual queues; said rate of token generation for each queue being dictated by an importance attached to the message type.

The motivation to do so is to mitigate the effects of a packet flooding denial-of service attack and the effects of data search resource exhaustion.

In claim 10, Van Dyke discloses all the aspects of claim 6 above, except fails to explicitly show the medium of claim 6, wherein the step of allocating resources comprises controlling a rate at which messages from individual users are processed by a call control server, thereby preventing denial-of-service attacks on the call control server by individual servers in a packet-based VoIP infrastructure.

However, D'Souza discloses a system and method of mitigating denial of service attacks using SIP (paragraphs 0041, 0042, abstract) by dequeuing packets from a plurality of queues at different rates according to the level of trust associated to the source address of the incoming

Art Unit: 2616

packets such that the higher the trust in the addresses the higher the rate at which the packets are dequeued from the given queue (paragraphs 0017, 0018).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the SIP resource allocation method of Van Dyke with the teaching of D'Souza in dequeuing packets from a plurality of queues at different rates according to the level of trust associated to the source address of the incoming packets such that the resource allocation method of Van Dyke will comprise controlling a rate at which messages from individual users are processed by a call control server, thereby preventing denial-of-service attacks on the call control server by individual servers in a packet-based VoIP infrastructure.

The motivation to do so is to mitigate the effects of a packet flooding denial-of service attack and the effects of data search resource exhaustion.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Seema S. Rao
SEEMA S. RAO 5/4/07
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Kevin Mew *Km*
Work Group 2616